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By: \_\_\_\_\_

**PATENT**  
Attorney Docket No.: 023070-094800US  
Client Reference No.: 99-232-1

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

**CHERN and RONALD**

Application No.: 09/294,539

Filed: April 19, 1999

**For: PROTEINS THAT REGULATE  
SYSTEMIC ACQUIRED RESISTANCE IN  
PLANTS**

Examiner: Kubelik, A

Art Unit: 1638

DECLARATION UNDER 37 C.F.R. §  
1.132 OF DR. PAMELA RONALD, PH.D.

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

I, Pamela Ronald, Ph.D., being duly warned that willful false statements and the like are punishable by fine or imprisonment or both (18 U.S.C. § 1001), and may jeopardize the validity of the patent application or any patent issuing thereon, state and declare as follows:

1. All statements herein made of my own knowledge are true, and statements made on information or belief are believed to be true and correct.
2. I am currently a professor in the Department of Plant Pathology at the University of California, Davis. I have been in this position and related positions for ten years.

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Before I became a professor, I was a post-doctoral fellow studying plant disease resistance at Cornell University.

3. In 1982, I graduated from Reed College with a bachelor of science in Biology. In 1990, I graduated from the University of California, Berkeley with a Ph.D. in Molecular and Physiological Plant Biology. A copy of my curriculum vitae is attached hereto as Exhibit A.

4. This declaration is provided to demonstrate that expression of *NH1* (SEQ ID NO:4 of the above-referenced patent application) enhances resistance to pathogens when expressed in plants. Sense constructs of the *NH1* gene were generated in the Cambia 1300-derived vector (Ubi-C1300). This construct employs the maize Ubi promoter to drive *NH1* cDNA expression and carries a hygromycin resistance gene.

5. Transformation of rice cultivar Liao Geng was carried out with the *NH1* construct. Transformants were inoculated with the bacterial pathogen *Xanthomonas oryzae* pv. *oryzae* Korean race1 strain DY89031. Enhanced resistance was observed in the transgenic lines. Exhibit B is a picture of transformant and control leaves 14 days after inoculation. At left are two leaves from the control line Liao Geng. The next two pairs are from leaves of two independently transformed lines, #11 and #27. These data demonstrate that plants with enhanced resistance to pathogens are produced by introducing into the plants a recombinant expression cassette directing expression of *NH1*.

Date:

1-7-02

By:

Pale RV

Pamela Ronald, Ph.D.

SE 1297301 v1

## APPENDIX A

### Pamela C. Ronald

Associate Professor  
Department of Plant Pathology  
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#### Education:

Ph.D. 1990, Molecular and Physiological Plant Biology, UC Berkeley.  
M.S. 1985, Plant Physiology University of Uppsala, Uppsala, Sweden.  
M.A. 1984, Biology, Stanford University.  
B.A. 1982, Biology, Reed College, Portland, Oregon.  
Diploma of French language studies. 1981, University of Strasbourg, France.

#### Professional Experience:

2000 Sabbatic fellow, Laboratoire de Biologie Moleculaire des Interactions Plantes  
Microorganismes, INRA-CNRS, Castanet-Tolosan, France  
1999-present Advisory Board member of UC Davis CONNECT  
1998-2000 Founder, Tellus Genetics, Davis, CA  
1997-present Associate Professor, Department of Plant Pathology, UC Davis  
1997-present Member of the editorial Board, *Planta*  
1992-1997 Assistant Professor, Department of Plant Pathology, UC Davis.  
1990-1992 Postdoctoral Fellow, Department of Plant Breeding, Cornell University.  
1985-1990 Doctoral candidate, Department of Plant Pathology, UC Berkeley.  
1984-1985 Fulbright Fellow, Inst. Physiological Botany, University of Uppsala, Sweden.  
1983-1984 Research Assistant, Department of Biology, Stanford University, CA.

#### Honors, Service:

2000-present Graduate advisor in plant pathology  
1999-2000 John Simon Guggenheim sabbatic fellowship  
1996 Graduate advisor in biochemistry and molecular biology  
1995,96 USDA Plant Pathology Review Panel.  
1990-1992 National Institute of Health Postdoctoral Fellowship, Cornell University.  
1988-1990 California Biotechnology Fellowship, University of California, Berkeley.  
1985-1986 McKnight Training Grant in Plant Biology, UC Berkeley.  
1984-1985 Fulbright Fellowship, Inst. Physiological Botany, University of Uppsala, Sweden.  
1982 Exxon Student Scholarship, Bermuda Biological Station.

#### Research Interests:

Molecular genetics of plant disease resistance.

#### Publications (last 4 years):

Shen Y, Sharma P, Silva F, Ronald PC. 2001, The *Xanthomonas oryzae* pv. *oryzae* *raxP* and *raxQ* genes encode an ATP sulfurylase and APS kinase that are required for AvrXa21 avirulence activity. *Mol. Microbio* In Press.

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- He ZH, Wang Z, Li J, Zhu Q, Lamb C, Ronald PC, Joanne Chory. 2000. Perception of brassinosteroid by the extracellular domain of the receptor kinase, BRI1 *Science*, 288: 2360
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- Tang, K., P. Tinjuangjun, Y. Xu, X. Sun, M. Ye, J. Gatehouse, P. C. Ronald, H. Qi, X. Lu, P. Christou and A. Kohli. Particle bombardment-mediated co-transformation of elite Chinese rice cultivars with genes conferring resistance to bacterial blight and spa-sucking insects. *Planta* 208:552-564.
- Zhang S, Song WY, Chen L, Ruan DL, Taylor N, Ronald PC, Roger Beachy and Claude Fauquet. 1998. Transgenic elite *Indica* rice varieties, resistant to rice bacterial blight. *Molecular Breeding* 4:551-558.
- Dong F, Miller JT, Jackson SA, Wang GL, Ronald PC, and Jiang J. 1998. Rice (*Oryza sativa*) Centromeric Regions Consist of Complex DNA. *PNAS* 95:8135-8140.
- Wang GL, Ruan DL, Song WY, Sideris S, Chen L, Pi LY, Zhang S, Zhang Z, Fauquet C, Gaut BS, Whalen MC, and Ronald PC. 1998. The rice disease resistance gene, *Xa21D*, encodes a receptor-like molecule with a LRR domain that determines race specific recognition and is subject to adaptive evolution. *Plant Cell* 10:765-779.
- Song WY, Pi LY, and Ronald PC. 1998. Identification and characterization of 14 transposable-like elements in the noncoding regions of the rice *Xa21* disease resistance gene family members. *MGG* 258:449-456.
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**Review, book chapters, research notes (last 4 years)**

- Ronald PC. 1998. Resistance Gene Evolution. *Current Opinions in Biology*. 1:294-298.
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**APPENDIX B**

Resistance to Xoo Korean Race 1 Conferred by  
Over-expression of the Rice NH1 Gene

